

 [Subscribe \(Full Service\)](#) [Register \(Limited Service, Free\)](#) [Login](#)

Search: The ACM Digital Library The Guide

database abstraction layer key

THE ACM DIGITAL LIBRARY

 [Feedback](#) [Report a problem](#) [Satisfaction survey](#)

Terms used **database abstraction layer key**

Found **84,937** of **196,064**

Sort results by **relevance** [Save results to a Binder](#)

[Try an Advanced Search](#)
[Try this search in The ACM Guide](#)

Display results **expanded form** [Search Tips](#)

[Open results in a new window](#)

Results 1 - 20 of 200

Result page: **1** [2](#) [3](#) [4](#) [5](#) [6](#) [7](#) [8](#) [9](#) [10](#) [next](#)

Best 200 shown

Relevance scale 

1 Building a layered database for design automation

 Robert V. Zara, David R. Henke

June 1985 **Proceedings of the 22nd ACM/IEEE conference on Design automation DAC '85**

Publisher: ACM Press

Full text available:  [pdf\(962.36 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

A layered approach is presented for the database of a distributed, interactive design automation system. Levels of abstraction are described from the point of view of the bottom-up designer. The controversy between the relational and network database formats is explored in the central abstraction: an object-oriented layer which attempts to select the advantages of each of these two formats while avoiding their respective disadvantages. This object-oriented approach treats each of ...

2 Applications: A multiple layered functional data model to support multiple

 **representations and interoperability of GIS: application to urban management systems**

Mohamed El Adnani, Kokou Yétongnon, Djamel Benslimane

November 2001 **Proceedings of the 9th ACM international symposium on Advances in geographic information systems GIS '01**

Publisher: ACM Press

Full text available:  [pdf\(946.47 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper presents a multi-layered functional data model to support multiple representation and information sharing among distributed spatial information systems. The key idea is that a geographical space (for example an urban space) can be viewed as a set of abstract spatial functionalities on which different application classes can be derived to manipulate objects of the same geographical space and share the same abstract generic functionalities. The object classes define multiple views or re ...

3 Architecting in the Face of Uncertainty: An Experience Report

Ian Gorton, Jereme Haack

May 2004 **Proceedings of the 26th International Conference on Software Engineering ICSE '04**

Publisher: IEEE Computer Society

Full text available:  [pdf\(218.04 KB\)](#) Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)

Understanding an application's functional and non-functional requirements is normally

seen as essential for developing a robust product suited to client needs. This paper describes our experiences in a project that, by necessity, commenced well before concrete client requirements could be known. After a first version of the application was successfully released, emerging requirements forced an evolution of the application architecture. The key reasons for this are explained, along with the architectural ...

4 Web site engineering: A flexible framework for engineering "my" portals

 Fernando Bellas, Daniel Fernández, Abel Muiño
May 2004 **Proceedings of the 13th international conference on World Wide Web
WWW '04**

Publisher: ACM Press

Full text available: .pdf(420.01 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

There exist many portal servers that support the construction of "My" portals that is portals that allow the user to have one or more personal pages composed of a number of personalizable services. The main drawback of current portal servers is their lack of generality and adaptability. This paper presents the design of MyPersonalizer a J2EE-based framework for engineering My portals. The framework is structured according to the Model-View-Controller and Layers architectural patterns providing ...

Keywords: design patterns, j2ee, portal technology, web application frameworks and architectures, web engineering

5 Modeling the storage architectures of commercial database systems

 D. S. Batory
December 1985 **ACM Transactions on Database Systems (TODS)**, Volume 10 Issue 4

Publisher: ACM Press

Full text available: .pdf(4.46 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Modeling the storage structures of a DBMS is a prerequisite to understanding and optimizing database performance. Previously, such modeling was very difficult because the fundamental role of conceptual-to-internal mappings in DBMS implementations went unrecognized. In this paper we present a model of physical databases, called the transformation model, that makes conceptual-to-internal mappings explicit. By exposing such mappings, we show that it is possible to model the storage ...

6 First-class views: a key to user-centered computing

 Arnon Rosenthal, Edward Sciore
September 1999 **ACM SIGMOD Record**, Volume 28 Issue 3

Publisher: ACM Press

Full text available: .pdf(597.27 KB) Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)

Large database systems (e.g., federations, warehouses) are multi-layer — i.e., a combination of base databases and (virtual or physical) view databases. Smaller systems use views for layers that hide detailed physical and conceptual structures. We argue that most databases would be more effective if they were more user-centered — i.e., if they allowed users, administrators, and application ...

7 Industrial practice I: Jena: implementing the semantic web recommendations

 Jeremy J. Carroll, Ian Dickinson, Chris Dollin, Dave Reynolds, Andy Seaborne, Kevin Wilkinson

May 2004 **Proceedings of the 13th international World Wide Web conference on
Alternate track papers & posters WWW Alt. '04**

Publisher: ACM Press

Full text available: [pdf\(139.86 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The new Semantic Web recommendations for RDF, RDFS and OWL have, at their heart, the RDF graph. Jena2, a second-generation RDF toolkit, is similarly centered on the RDF graph. RDFS and OWL reasoning are seen as graph-to-graph transforms, producing graphs of virtual triples. Rich APIs are provided. The Model API includes support for other aspects of the RDF recommendations, such as containers and reification. The Ontology API includes support for RDFS and OWL, including advanced OWL Full support. ...

Keywords: Jena, OWL, RDF, RDQL, semantic web

8 Fast and scalable layer four switching

 V. Srinivasan, G. Varghese, S. Suri, M. Waldvogel

October 1998 **ACM SIGCOMM Computer Communication Review , Proceedings of the ACM SIGCOMM '98 conference on Applications, technologies, architectures, and protocols for computer communication SIGCOMM '98**, Volume 28 Issue 4

Publisher: ACM Press

Full text available: [pdf\(1.76 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

In Layer Four switching, the route and resources allocated to a packet are determined by the destination address as well as other header fields of the packet such as source address, TCP and UDP port numbers. Layer Four switching unifies firewall processing, RSVP style resource reservation filters, QoS Routing, and normal unicast and multicast forwarding into a single framework. In this framework, the forwarding database of a router consists of a potentially large number of filters on key header ...

9 Beyond SGML

 Roger Price

May 1998 **Proceedings of the third ACM conference on Digital libraries DL '98**

Publisher: ACM Press

Full text available: [pdf\(1.12 MB\)](#) Additional Information: [full citation](#), [references](#), [index terms](#)

10 Spatial and temporal content-based access to hypervideo databases

Haitao Jiang, Ahmed K. Elmagarmid

December 1998 **The VLDB Journal – The International Journal on Very Large Data Bases**, Volume 7 Issue 4

Publisher: Springer-Verlag New York, Inc.

Full text available: [pdf\(241.17 KB\)](#) Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)

Providing content-based video query, retrieval and browsing is the most important goal of a video database management system (VDBMS). Video data is unique not only in terms of its spatial and temporal characteristics, but also in the semantic associations manifested by the entities present in the video. This paper introduces a novel video data model called *Logical Hypervideo Data Model*. In addition to multilevel video abstractions, the model is capable of representing video entities that ...

Keywords: Content-based query, Hot object, Hypervideo, Spatial and temporal constraint, Video database

11

Wrapper-based evolution of legacy information systems

 Philippe Thiran, Jean-Luc Hainaut, Geert-Jan Houben, Djamal Benslimane
 October 2006 **ACM Transactions on Software Engineering and Methodology (TOSEM)**,
 Volume 15 Issue 4
 Publisher: ACM Press
 Full text available:  pdf(873.15 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

System evolution most often implies the integration of legacy components, such as databases, with newly developed ones, leading to mixed architectures that suffer from severe heterogeneity problems. For instance, incorporating a new program in a legacy database application can create an integrity mismatch, since the database model and the program data view can be quite different (e.g. standard file model versus OO model). In addition, neither the legacy DBMS (too weak to address integrity issues ...

Keywords: CASE tool, Schema transformation, data consistency, data reverse-engineering, evolution, legacy database, wrapper

12 Abstraction in recovery management 

 J. Eliot B Moss, Nancy D. Griffeth, Marc H. Graham
 June 1986 **ACM SIGMOD Record, Proceedings of the 1986 ACM SIGMOD international conference on Management of data SIGMOD '86**, Volume 15 Issue 2
 Publisher: ACM Press

Full text available:  pdf(1.41 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

There are many examples of actions on abstract data types which can be correctly implemented with nonserializable and nonrecoverable schedules of reads and writes. We examine a model of multiple layers of abstraction that explains this phenomenon and suggests an approach to building layered systems with transaction oriented synchronization and roll back. Our model may make it easier to provide the high data integrity of reliable database transaction processing in a broader class of informat ...

13 A model of integrity for object-oriented database systems 

 James M. Slack, Elizabeth A. Unger
 April 1992 **Proceedings of the 1992 ACM/SIGAPP Symposium on Applied computing: technological challenges of the 1990's SAC '92**

Publisher: ACM Press
 Full text available:  pdf(890.62 KB) Additional Information: [full citation](#), [references](#), [index terms](#)

14 A storage system for complex objects 

U. Deppisch, H.-B. Paul, H.-J. Schek
 September 1986 **Proceedings on the 1986 international workshop on Object-oriented database systems OODS '86**
 Publisher: IEEE Computer Society Press

Full text available:  pdf(1.17 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Complex objects are required in many new applications of databases. A common characteristic feature is that objects use other (sub-) objects for their description. Consequently retrieval or extraction of complex objects may include some or all of their subobjects which - in turn - may have subobjects to be extracted too. Accordingly a storage system is described which was designed and implemented with the objective to provide this set orientation: Relations with relation-valued attr ...

15 Multimedia database management systems 

Arif Ghafoor

December 1995 **ACM Computing Surveys (CSUR)**, Volume 27 Issue 4

 Publisher: ACM Press

Full text available: [pdf\(439.38 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

16 Formal prototyping in early stages of protocol design

 Alwyn Goodloe, Carl A. Gunter, Mark-Oliver Stehr

January 2005 **Proceedings of the 2005 workshop on Issues in the theory of security WITS '05**

Publisher: ACM Press

Full text available: [pdf\(530.03 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

Network protocol design is usually an informal process where debugging is based on successive iterations of a prototype implementation. The feedback provided by a prototype can be indispensable since the requirements are often incomplete at the start. A draw-back of this technique is that errors in protocols can be notoriously difficult to detect by testing alone. Applying formal methods such as theorem proving can greatly increase one's confidence that the protocol is correct. However, formal m ...

17 The HySpirit retrieval platform

 Thomas Rölleke, Ralf Lübeck, Gabriella Kazai

September 2001 **Proceedings of the 24th annual international ACM SIGIR conference on Research and development in information retrieval SIGIR '01**

Publisher: ACM Press

Full text available: [pdf\(92.25 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

18 Industrial session: potpourri: Getting priorities straight: improving Linux support for database I/O

Christoffer Hall, Philippe Bonnet

August 2005 **Proceedings of the 31st international conference on Very large data bases VLDB '05**

Publisher: VLDB Endowment

Full text available: [pdf\(349.39 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The Linux 2.6 kernel supports asynchronous I/O as a result of propositions from the database industry. This is a positive evolution but is it a panacea? In the context of the Badger project, a collaboration between MySQL AB and University of Copenhagen, we evaluate how MySQL/InnoDB can best take advantage of Linux asynchronous I/O and how Linux can help MySQL/InnoDB best take advantage of the underlying I/O bandwidth. This is a crucial problem for the increasing number of MySQL servers deployed ...

19 Exploiting recursion to simplify RPC communication architectures

 D. R. Cheriton

August 1988 **ACM SIGCOMM Computer Communication Review , Symposium proceedings on Communications architectures and protocols SIGCOMM '88**, Volume 18 Issue 4

Publisher: ACM Press

Full text available: [pdf\(1.64 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Current communication architectures suffer from a growing collection of protocols in the host operating systems, gateways and applications, resulting in increasing implementation and maintenance cost, unreliability and difficulties with interoperability. The remote procedure call (RPC) approach has been used in some distributed systems to contain the

diversity of application layer protocols within the procedure call abstraction. However, the same technique cannot be applied ...

20 An infrastructure for cooperative applications based on conventional database 

 transactions

N. Ritter

April 1995 **ACM SIGOIS Bulletin**, Volume 15 Issue 3

Publisher: ACM Press

Full text available:  [.pdf\(1.03 MB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)

'Computer-Supported Cooperative Work' (CSCW) is a young, interdisciplinary research area considering applications with strong demands on multiple fields of computer technology, e.g., distributed systems and networks, or multi-media systems. In this paper, we will be focusing on the information-sharing aspect and the corresponding activity-control aspect. Employing database systems for the management of shared data means dealing with conventional transactions. Crucial issues of the classical tran ...

Keywords: activity support, concurrency control, cooperation control, transactions

Results 1 - 20 of 200

Result page: [1](#) [2](#) [3](#) [4](#) [5](#) [6](#) [7](#) [8](#) [9](#) [10](#) [next](#)

The ACM Portal is published by the Association for Computing Machinery. Copyright © 2007 ACM, Inc.

[Terms of Usage](#) [Privacy Policy](#) [Code of Ethics](#) [Contact Us](#)

Useful downloads:  [Adobe Acrobat](#)  [QuickTime](#)  [Windows Media Player](#)  [Real Player](#)

tigeratsmu@gmail.com | [My Account](#) | [Sign out](#)[Web](#) [Images](#) [Video](#) [News](#) [Maps](#) [more »](#)

abstraction layer for a database interface control records

[Search Patents](#)[Advanced Patent Search](#)The following words are very common and were not included in your search: **for a** [det]**Patent Search** Patents 1 - 10 of 81 on abstraction layer for a database interface control records. (0.12s)Document data processor for an object-oriented knowledge management system containing a personal database in communication with a packet processor

US Pat. 5806068 - Filed Dec 13, 1996

Seventhly, the means for code object **abstraction layer** (CAL) which provide universal binary program interface wherein resulting binary code can be ...Multidimensional advanced adaptive software architecture

US Pat. 7003774 - Filed Jul 16, 2001 - Smartmatic

The CORE makes the correct calls to the **database abstraction layer** in order to register all data before any interaction with the control network. ...Instant activation of point-to point protocol (PPP) connection using existing PPP state

US Pat. 6628671 - Filed Jan 19, 1999 - VTStarcom, Inc.

Hardware **Abstraction Layer** and Device Drivers 90 12 and hardware drivers for ...Call Control Task maintains a list of dynamic call **database** (DCD) **records**. ...Radius-based mobile internet protocol (IP) address-to-mobile identification number mapping for wireless communication

US Pat. 6466571 - Filed Jan 19, 1999 - 3Com Corporation

Hardware **Abstraction Layer** and Device Drivers 90 Much of the hardware ... 132 The Call Control Task maintains a list of dynamic call **database** (DCD) **records**. ...Event manager for use in fraud detection

US Pat. 6535728 - Filed Nov 18, 1999 - Lightbridge, Inc.

A hardware **abstraction layer** 200 provides a hardware- independent foundation for software ... The events and scores are maintained in an event **database** 234, ...Object-oriented transaction computing system

US Pat. 6424989 - Filed Dec 5, 1997

26 within protocol layer n, there is also a scheduler means that tern's ...
the means for code object **abstraction layer** operating system and **database** ...Methods for managing preferred internet sites in a computer system having a browser

US Pat. 6544295 - Filed Nov 18, 1996 - Starfish Software, Inc.

The mark information itself is stored in the **database** 1130. As shown in FIG.11B, the plug-in 1120 communicates 50 with a driver **abstraction layer** ("cool" ...Digital dictionary with a communication system for the creating, updating, editing, storing, maintaining, referencing, and managing the digital dictionary

US Pat. 6151598 - Filed Dec 4, 1997

D. System and Program **Abstraction** Fifthly, the means for providing portable ...
binary program interface operating system and **database** management system, ...

Computer, memory, telephone, communications, and transportation system and methods

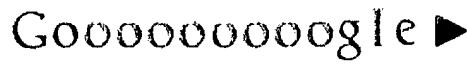
US Pat. 5983004 - Filed Nov 7, 1996

65 Firstly, the means for system **abstraction layer** (SAL) which allow for the ...
a plurality of external operating system and **database** management system, ...

Integrated circuit system for direct document execution

US Pat. 5754766 - Filed Aug 14, 1995

D. System and Program **Abstraction** 20 Fifthly, the means for providing portable
... binary program **interface** operating system and **database** management system, ...

The Google logo is displayed in its signature blue, red, yellow, and green colors, with a small black triangle pointing to the right to the right of the word "Google".Result Page: 1 2 3 4 5 6 7 8 9 [Next](#) [Search Patents](#)[Google Patent Search Help](#) | [Advanced Patent Search](#)[Google Home](#) - [About Google](#) - [About Google Patent Search](#)

©2007 Google

tigeratsmu@gmail.com | [My Account](#) | [Sign out](#)

[Web](#) [Images](#) [Video](#) [News](#) [Maps](#) [more »](#)



abstraction layer independent from data model

[Search Patents](#)

[Advanced Patent Search](#)
[Google Patent Search](#)

"from" is a very common word and was not included in your search. [\[details\]](#)

Patent Search Patents 1 - 10 of 133 on abstraction layer independent from data model database. (0.11)

Dynamic end user specific customization of an application's physical data layer through a data repository abstraction layer

US Pat. 6928431 - Filed Apr 25, 2002 - International Business Machines Corporation

DYNAMIC END USER SPECIFIC CUSTOMIZATION OF AN APPLICATION'S PHYSICAL DATA LAYER
THROUGH A DATA REPOSITORY ABSTRACTION LAYER BACKGROUND OF THE INVENTION 1. ...

Remote data access and integration of distributed data sources through data schema and query abstraction

US Pat. 6954748 - Filed Apr 25, 2002 - International Business Machines Corporation

40 One of the issues faced by **data mining** and **database** query ... that changes in
the underlying relational **data model** require changes to the SQL foundation ...

Query engine and method for querying data using metadata model

US Pat. 6609123 - Filed Sep 1, 2000 - Cognos Incorporated

With respect to the three levels of **database abstraction**, reference is made to FIG.

... Some **data** models may use a **layer** corresponding to both the external ...

Metadata model

US Pat. 6662188 - Filed Sep 1, 2000 - Cognos Incorporated

With respect to the three levels of **database abstraction**, reference is made to FIG.

... Some **data** models may use a **layer** corresponding to both the external ...

Independent restoration of control plane and data plane functions

US Pat. 6601186 - Filed May 20, 2000 - Equipe Communications Corporation

It is also coupled to ATM interface **model** 20 333. The UML logical **model** is layered
on the physical computer system to add a **layer of abstraction** between ...

TABLE VIII

US Pat. 7089235 - Filed Apr 17, 2003 - International Business Machines Corporation

In one embodiment, a **data repository abstraction layer** provides a logical view
of the underlying **database** that is **independent** of the particular manner in ...

ADD TO CONCRETE QUERY STATEMENT

US Pat. 7096229 - Filed May 23, 2002 - International Business Machines Corporation

One difficulty is that changes in the underlying relational **data model** ...

the application's **data** management **layer** to use non-SQL **data** access methods. ...

Dealing with composite data through data model entities

US Pat. 7054877 - Filed Mar 31, 2003 - International Business Machines Corporation

Use of an **abstraction layer** to represent logical fields in an underlying **data**
repo... ... this **model** allows solutions to be developed 35 **independent** of the ...

Metadata exchange

US Pat. 6611838 - Filed Sep 1, 2000 - Cognos Incorporated

The lowest level in the **database abstraction** is the internal level 1. ...

Typical dbmss use a **data model** to describe the **data** and its structure, ...

[Automatic data abstraction generation using database schema and related objects](#)

US Pat. 7062496 - Filed Feb 12, 2003 - International Business Machines Corporation

I AUTOMATIC DATA ABSTRACTION GENERATION USING DATABASE SCHEMA AND RELATED OBJECTS

BACKGROUND OF THE INVENTION 5 1. Field of the Invention The present ...

Google ►

Result Page: [1](#) [2](#) [3](#) [4](#) [5](#) [6](#) [7](#) [8](#) [9](#) [10](#) [Next](#)

abstraction layer independent from data model [Search Patents](#)

[Google Patent Search Help](#) | [Advanced Patent Search](#)

[Google Home](#) - [About Google](#) - [About Google Patent Search](#)

©2007 Google

tigeratsmu@gmail.com | [My Account](#) | [Sign out](#)[Web](#) [Images](#) [Video](#) [News](#) [Maps](#) [more »](#)

database abstraction layer key

[Search Patents](#)[Advanced Patent Search](#)
[Google Patent Search](#)

Patent Search

Patents 1 - 10 of 135 on database abstraction layer key. (0.72 seconds)

Multi-layer abstraction bucket mechanism

US Pat. 5920870 - Filed Aug 18, 1997 - Wang Laboratories, Inc.

Each Table Instructions 126 further includes a Needs Key 126d flag that ...

The operation of a multi-layer abstraction bucket mechanism according to the ...

Dynamic end user specific customization of an application's physical data layer through a data repository abstraction layer

US Pat. 6928431 - Filed Apr 25, 2002 - International Business Machines Corporation

Use of an abstraction layer to represent logical fields in an underlying data repository enables an application developer to focus on key 55 application ...

Telephone abstraction layer and system in a computer telephony system

US Pat. 6584185 - Filed Jan 31, 2000 - Microsoft Corporation

The TAD 100 would then go to the directory or user database 80 and read only those

... In addition to the interfacing of the abstraction for the display and ...

Time and work tracker with hardware abstraction layer

US Pat. 6185514 - Filed Aug 13, 1999 - Ricos International, Inc.

Using the hardware abstraction layer, the external input devices are not ...

The data analyzer means includes a database and the log file captured by the ...

Time and activity tracker with hardware abstraction layer

US Pat. 6397167 - Filed Dec 19, 2000 - Discovision Associates

Using the hardware abstraction layer, the external input devices are not ...

The data analyzer means includes a database and the log file captured by the ...

Dynamic object-driven database manipulation and mapping system

US Pat. 6999956 - Filed Nov 15, 2001

As a point of reference, a foreign key is generally accepted as a predefined ...

adapter abstraction layer 600 comprising the first adapter 400. ...

Operating system abstraction and protection layer

US Pat. 7028305 - Filed May 16, 2001 - Softricity, Inc.

A user can only connect to one database without reinstalling the client, ...

It also provides an abstraction layer to the operating system-dependent ...

Object-based security system

US Pat. 6829712 - Filed May 29, 2003 - Sprint Communications Company L.P.

The security abstraction layer 1110 is based on the RSA library of security ...

The object database 1159 is advantageous because changes to a class are ...

Object-based security system

US Pat. 6330677 - Filed Oct 27, 1998 - Sprint Communications Company, L. P.

The ORB 1141 the security abstraction layer 1110 can be designed indepen-

un-* * mi ... The pre-marshall interceptor 1157 ORB 1158 object **database** 1159, ...

Object-based security system

US Pat. 6594763 - Filed Sep 25, 2001 - Sprint Communications Company L.P.

The security **abstraction layer** 1110 is based on the RSA library of security ...

The object **database** 1159 is advantageous because changes to a class are ...

Gooooooooooooogle ►

Result Page: 1 2 3 4 5 6 7 8 9 10 [**Next**](#)

database abstraction layer key

[Search Patents](#)

[Google Patent Search Help](#) | [Advanced Patent Search](#)

[Google Home](#) - [About Google](#) - [About Google Patent Search](#)

©2007 Google